ORIGINAL ARTICLE

Communicating tobacco health risks: How effective are the warning labels on tobacco products?

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ABSTRACT

Background: Health hazards of tobacco are well known but only small numbers of tobacco users are fully aware of the harmful effects of tobacco. Warning labels on tobacco products are an effective way of communicating the consequences of tobacco use and bring about behavioural changes like quitting and reducing the tobacco consumption. So the present study was conducted to investigate the awareness and effectiveness of warning labels on tobacco products among health and non-healthcare professional of Barwala, Panchkula. **Materials and Methods:** A descriptive cross-sectional survey was carried out among 408 subjects who were randomly selected from different professional colleges of Barwala, Panchkula. Data obtained were anlysed using descriptive statistics and Chi-square test using SPSS 20.0. **Results:** Most of study participants has noticed the warnings on tobacco products and most of them believe that they could understand warning labels. More that 70% believe that warnings create awareness about health hazards of tobacco and help in reducing or quitting tobacco. Pictorial warning was found to be better as compared to text warning. Health professionals were able to assess pictorial warnings more correctly as compared to non-healthcare professionals. **Conclusion:** Warning labels on tobacco packs effectively inform people about adverse health effects of tobacco but the mandated warnings do not serve the desired purpose since they are not properly understood.

Key words: Awareness, effectiveness, tobacco, warning labels

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INTRODUCTION

"Tobacco is the only legally available product that kills people."[1] Tobacco consumption in any way is lethal. Tobacco smoke not only causes physical and mental harms to the smoker himself but also affects others exposed to it (passive smokers). The effects of tobacco can range from simple bronchitis to impotence among men and encompassing death in its fist. Every 6 seconds, one person dies as the result of tobacco consumption in the world.[2] If current trends continue and necessary actions are not taken tobacco-related deaths will increase to more than eight million a year by 2030, and 80% of those deaths will occur in the developing world.[3,4]

Health hazards of tobacco are well known but only small numbers of tobacco users are fully aware of the harmful effects of tobacco which leads to initiation and continuation of tobacco use. They think of it as a bad habit that they are knowingly involved with.[5]

Communicating the hazardous effects of tobacco remains a primary goal of the tobacco control policy. Warning labels on tobacco products are an effective way of communicating the consequences of tobacco use and bring about behavioural changes like quitting and reducing the tobacco consumption.[6] Health warnings on packages are appealing because tobacco packaging is not removed and discarded but is used as container until contents are consumed; it provides low cost to regulators; unparalleled reach among tobacco users and is also an important source of information, attract the attention of tobacco users, increase awareness of the health hazards of tobacco. Canada, in the year 2001, became the first country to mandate graphic warnings followed by Brazil.[7,8] Studies in Australia, Belgium, Brazil, Canada, Thailand and some other countries show that health warnings on cigarette packs especially the graphic ones are an important source of information. Since Canada first adopted its graphic pack warnings, many other countries have done the same.[9,10] The number of countries adopting graphic warnings is increasing (see

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http://www.tobaccolabels.ca/healthwarnings for the latest number).

As far as India is concerned, implementation of the pictorial warnings has taken a rather long time and was to be enforced on May 31, 2009. These warning labels on tobacco products are mandated under The Cigarettes and Other Tobacco Products (COTPA) (Prohibition of Advertisement & Regulation of Trade & Commerce, Production, and Supply & Distribution) Act, 2003.[11]

Despite existing tobacco control policies, not only the number of juvenile and young tobacco users continues to rise unabated, but so have the diseases, disabilities and deaths attributed to tobacco use, upped considerably.

The purpose of the current study was assessment of awareness and effectiveness of warning labels on tobacco use among health and non-health professionals, Barwala Panchkula.

MATERIALS AND METHODS

A descriptive cross-sectional questionnaire study was conducted from April to May 2013 among six conveniently selected professional Colleges (Nursing, Dental, Pharmacy, diploma, engineering, B.Ed) in Barwala, Panchkula to assess the awareness and effectiveness of warning labels on tobacco use. Ethical clearance was obtained from the Institutional Ethical Committee and oral informed consent was obtained from the participants.

Data was collected by means of self-designed, structured questionnaire which comprised seven questions divided into four areas of enquiry on demographic details, tobacco usage, awareness and effectiveness of warning labels present on tobacco products.

Questionnaire validity was checked by Cronbach's alpha (0.85). A pilot study was conducted 1 month prior to the original study with a sample of 50 individuals who were not part of the main sample to know feasibility and validity of questionnaire before the main study. Based on pilot study sample size (Annexure) was estimated for the main study (n = 408). A prior permission was obtained from concerned college authorities. From each college, 68 students were selected randomly by using simple random sampling technique.

The questionnaire was distributed to study subjects during their free time. The purpose of the study and all the terms used in the questionnaire were explained to the students. The students were also ensured complete confidentiality and anonymity of the participants Twenty-five minutes were given to each person to fill the questionnaire. Such filled questionnaires were collected on same day. Participants who were not willing to participate in the study or who were absent during three consecutive visits were excluded from the study.

Annexure

Sample Size calculation

Base Sample-size Calculation is done by using formula

$$n = \frac{t^2 \times p(1\text{-}p)}{m^2}$$

$$n = \frac{1.96^2 \times 0.8(1\text{-}0.8)}{.04^2}$$

The sample is further increased by 5% to account for contingencies such as non-response or recording error. (n + 5% = 403.2~403)

Finally, the calculation result is rounded up to the closest number that matches well with the number of clusters (6 colleges) to be surveyed. (Final Sample Size: n = 408 children)

The final sample size (N) is then divided by the number of clusters (6) to determine the number of observations per cluster. (N ÷ no. clusters = 408 ÷ 6 = 68 student per college)

The data was compiled and entered into Standard Microsoft Excel 2007. Statistical analysis was conducted using SPSS computer package version 20.0 (SPSS Inc., Chicago, IL, USA). For the purpose of statistical analysis data was dichotomised as health (Nursing, Dental and Pharmacy) and non-healthcare professionals (diploma, engineering, B.Ed). The differences between variables were assessed by the Chi-square test and a significance level of $P < 0.05$ was set throughout.

RESULTS

A total of 372 participants completed the questionnaire. The mean age group of study subjects was 21.9 ± 3.1 years. (Males = 30.1%; Females = 69.9%, Figure 1). The study sample consisted of 53.5% health professionals and 46.5% non-health professionals [Figure 2]. Among the participants 22.6% were current tobacco users, 8.9% past tobacco users and 68.5% never tobacco users.

Table 1 and Figure 3 depicts tobacco use habit based on gender. Fifty-five percent males and 8.8% females were current tobacco users. Cigarette was most common form of tobacco used among both the gender and the most common reason for starting tobacco use was peer pressure. Warning labels was major reason for quitting tobacco use among past tobacco users.

Table 2 and Figure 4 depicts tobacco use habit based on profession. 19.1% health professionals and 26.7% non-health professionals were current smokers. Peer pressure was main reason to start tobacco use. Cigarette was most common form of tobacco used. Warning labels was major reason for quitting tobacco use among past tobacco users.

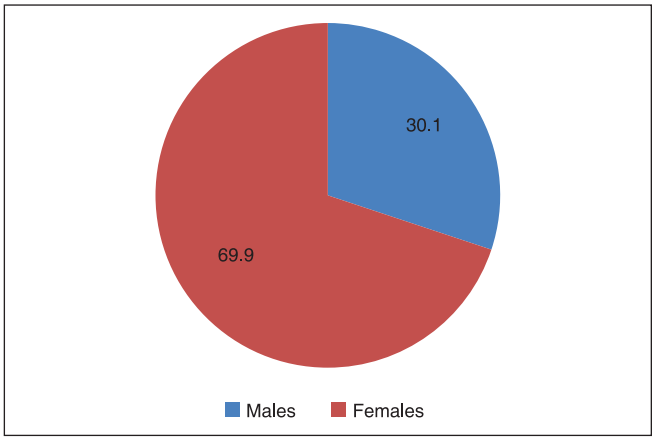


Figure 1: Sample distribution based on gender

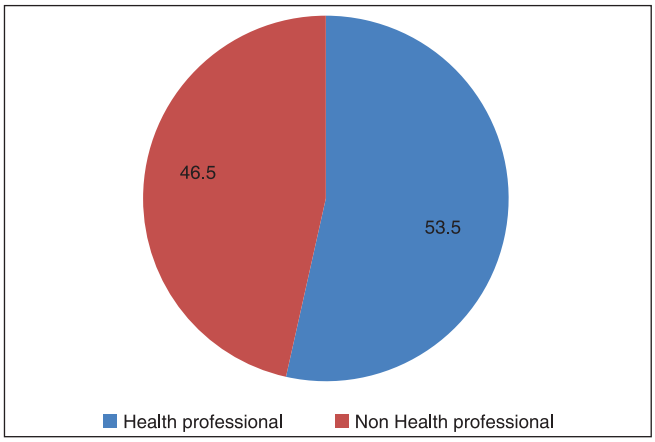


Figure 2: Sample distribution based on profession

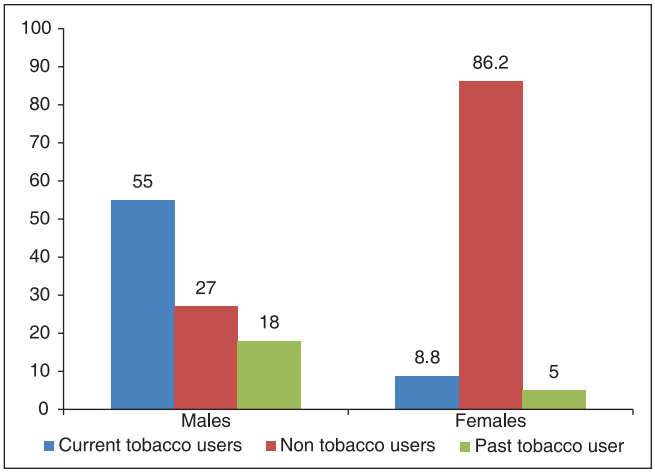


Figure 3: Distribution of tobacco use based on gender

Table 1: Tobacco use habits among gender

	Males (%)	Females (%)
Current Tobacco user*	55	8.8
Non-tobacco user*	27	86.2
Past tobacco users*	18	5
Reason for start using the tobacco	Stress (41.5)	Stress (18.2)
	Peer Pressure (46.3)	Peer Pressure (63.6)
	Television (2.4)	Television (9.1)
	Cinema (3.7)	Cinema (3.0)
	Others (6.1)	Others (6.1)
Form of tobacco consumed*	Beedi (2.4)	Beedi (0)
	Cigarette (74.4)	Cigarette (81.8)
	Gutka (2.4)	Gutka (3.0)
	Zarda (2.4)	Zarda (9.1)
	Combination (18.4)	Combination (6.1)
Duration	1-5yrs	1-5yrs
Frequency*	More	Occasionally
Reason for quitting tobacco use * (in case of past tobacco user)	Media (4.8)	Media (14.3)
	Medical Problem (19.0)	Medical problems (14.3)
	Warning labels (47.6)	Warning labels (64.3)
	Family Pressure (4.8)	Family Pressure (0)
	Health professional (14.3)	Health professional (7.1)
	Others (9.5)	Others (0)

*P-value < 0.05

Table 2: Tobacco use habits among health and non-healthcare professional

	Health care professional (%)	Non-healthcare professional (%)
Current Tobacco user*	19.1	26.7
Non Tobacco user*	5.5	12.8
Past tobacco users	75.4	60.5
Reason for start using the tobacco*	Stress (50.0)	Stress (24.6)
	Peer Pressure (26.1)	Peer Pressure (68.1)
	Television (4.3)	Television (4.3)
	Cinema (4.3)	Cinema (2.9)
	Others (15.2)	Others (0)
Form of tobacco consumed*	Beedi (4.3)	Beedi (0)
	Cigarette (60.9)	Cigarette (87.0)
	Gutka (6.5)	Gutka (0)
	Zarda (2.2)	Zarda (5.8)
	Combination (26.1)	Combination (7.2)
Duration	1-5yrs	1-5yrs
Frequency	Less	More
Reason for quitting tobacco use (in case of past tobacco user)	Media (16.7)	Media (4.3)
	Medical Problem (33.3)	Medical problems (39.1)
	Warning labels (25.0)	Warning labels (30.4)
	Family Pressure (0.0)	Family Pressure (13.0)
	Health professional (16.7)	Health professional (8.7)
	Others (8.3)	Others (4.3)

*P-value <0.05

Table 3 depicts awareness about harmful effects of tobacco based on profession. Healthcare professionals were more aware about harmful effects of tobacco as compared to non-healthcare professionals (*P*-value < 0.05).

Table 4 depicts awareness about warning labels on tobacco product. Most of study participants have noticed the warnings on tobacco products and most of them believe that they could understand warning labels. More that 70% believe that warnings create awareness about health hazards of tobacco and help in reducing or quitting tobacco. Pictorial warning was found to be better as compared to text warning.

Table 5 shows assessment of pictorial warnings and their association with tobacco. A picture of lung disease and oral cancer was correctly identified by >70% health professionals and >40% by non-health professionals. These pictures show the maximum association with the tobacco-related hazard.

When further enquired about the most effective warning label, the picture of oral cancer (55.6) followed by picture of lung disease (32.3%) was found to be most effective.

When participants were asked suggestion for making warning effective, they believed that by introducing scarier picture on tobacco products, writing the warning in native language and mentioning about more ill effects of tobacco these can be made more effective.

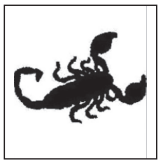
Table 3: Awareness about harmful effects of tobacco

	Health care professional (%)	Non-healthcare professional (%)
Tobacco consumption is harmful	92.0	98.8
Knowledge about ill effects*	More	Less
Tobacco consumption banned in public places*	92	91.3

Table 4: Awareness about warning labels on tobacco product

	Health care professional (%)	Non-healthcare professional (%)
Noticed tobacco warning*	98	94.2
Understand tobacco warning	97	97.5
Warning create awareness about hazards*	78.9	71.1
Better warning	Pictorial	Pictorial
Warning effective in quitting/ reducing tobacco use	77.4	73

Table 5: Assessment of pictorial warnings and their association with tobacco

Picture	Correctly identified		Tobacco association	
	HP(%)	NHP(%)	HP(%)	NHP(%)
	70.4	61.7	94.5	82.1
	79.4	41.6	96.5	75.7
	23.6	17.5	53.8	57.2
	48.7	39.9	78.9	66.5

HP – Health professionals; NHP – Non-health professionals

DISCUSSION

"If packaging is one of effective means to entice a person buy a product, it can also be effectively used to ensure that person shuns it."[12]

Warning labels are an easy inexpensive way to show the truth about tobacco consumption. The warning will thus reach all users and non-tobacco users and increase their awareness about tobacco use.

Review of literature suggest that no study has been carried out comparing awareness and effectiveness of warning labels on tobacco use among health and non-healthcare professionals. Thus, the present study was conducted to assess awareness and effectiveness of warning labels

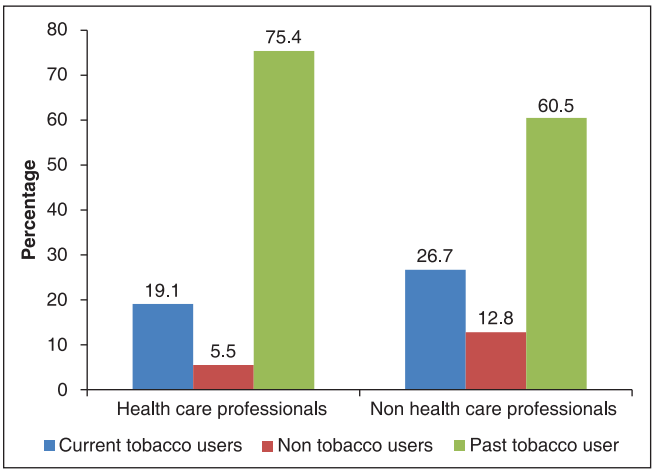


Figure 4: Distribution of tobacco use among health and non-healthcare professionals

on tobacco use among health and non-healthcare professionals, Barwala, Panchkula.

This study used a convenience sampling technique, to ensure equal representation of health and non-healthcare professionals as the intention was to explore perceptions by these professionals.

In this study, only young adults were included because of the potential impact of warning labels on this age group and the idea that young adults who are non-tobacco users or only use tobacco occasionally may be influenced by label information.

Results of study revealed that 22.6% of study participants were tobacco users and 8.9% were past tobacco user. Cigarette smoking was highest among study participants which was in concordance with study done by Rahman M (2007)[13] and Karingannavar A(2010).[14] The major reasons attributed to consume tobacco were stress and peer pressure. More than 90% of study participants feel that tobacco consumption is harmful.

More than 90% of study participants had noticed tobacco warning labels which was in concordance with study done by Centers for Disease Control and Prevention (CDC), 2000.[15] Pictorial warnings were found to be more effective than text warnings. This can be due to fact that they are eye catching, informative, add on as an additional motivation in quitting tobacco consumption.

Majority of study participants feel that they could understand pictorial warnings. However, when they were asked to assess the pictorial warning labels many of study participants were not able to assess them correctly. Thus, the mandated warnings do not serve the desired purpose since they are not properly understood. Findings of this study corroborate with those of an earlier study conducted in Mumbai by Oswal *et al* (2011) and study by Arora *et al* (2012) in five different states, which suggest that pictorial warnings that existed on tobacco packs are perceived to be ineffective by the Indian population.[16,17]

Continued use of ineffective warning labels on tobacco products represents a missed opportunity as the Government has failed to effectively utilise this evidence-based strategy to enhance knowledge about the effects of tobacco among the people, in addition to other educational interventions, e.g., anti-tobacco advertising employed by the Ministry of Health and Family Welfare in India. More influential warning labels are required in order to achieve the goals set for tobacco control.

This study has some limitations, such as the convenient sampling method and self-reported questionnaires that may cause several biases including recall and social desirability bias.

However, strength of our study remains in the fact that it provides an overview on awareness and effectiveness of warning labels among health and non-healthcare professionals for the first time and can prove to be a benchmark for future comparisons by the public health personnel and decision makers.

CONCLUSIONS

Warning labels on tobacco packs effectively inform people about adverse health effects of tobacco. The present cross-sectional questionnaire study among 372 health and non-healthcare professionals of Barwala revealed that most of study participants have noticed the warnings on tobacco products and most of them believe that they could understand warning labels. More than 70% study participants believe that warnings create awareness about health hazards of tobacco and help in reducing or quitting tobacco. Pictorial warnings were found to be more impactful than text warnings. Health professionals were able to assess pictorial warnings more correctly as compared to non-healthcare professionals. However, mandated warnings do not serve the desired purpose since they are not properly understood. People would like to see warnings with scarier picture, textual warning in native language and mentioning about more ill effects of tobacco.

The tobacco epidemic is devastating, but preventable. Findings of this study provide important lessons for India as well as other developing countries, to ensure effective and field-tested health warnings are displayed on tobacco product packages which can address all the issues related to increasing the awareness and motivation to quit tobacco consumption among all the folks and not to let Governments succumb to tobacco industry pressures which can result in milder and ineffective health warnings.

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